

User's Perception toward Baby Room Design in Malaysia Shopping Center

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Abstract—Breastfeeding has prevalently been promoted worldwide by the World Health Organization (WHO) and is increasingly recognized by private & government sectors. Surprisingly, breastfeeding rate in Malaysia is relatively low and similar degenerating trends seem to be occurring across Asia. This paper was undertaken to assess baby facilities in public space and users' perception toward baby room design in Malaysia's shopping center. The correspondence survey has been conducted for northern, central & southern Malaysia and several key issues have been derived from the data acquired: 1.) Interior Environmental factors 2.) Hygienic matter 3.) Security enforcement and privacy perceived. The key findings for this survey have strongly proven that improvements and developments for baby rooms in the shopping center are imminently needed.

Keywords—Baby room, breastfeeding, environment factor, interior design.

I. INTRODUCTION

IN the modern age of consumerism, shopping centers has become an interaction space for all levels of the civilization, [1] acting as a salient social piazza. Today, the owners of the shopping centers are setting up various spaces and facilities to accommodate shoppers's need. The baby room, subsequently, is one of the important facilities integrated in shopping centers. Predominantly, the objective of the baby room is to promote and encourage mothers to breastfed. In compliance with the WHO recommendation, mothers are encouraged to breastfed their baby exclusively up to six months [2] but surprisingly, the trend in Malaysia seems to be suggesting the opposite preference. Consequently, one is enticed to wonder whether the low breastfeeding rate is

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influenced by the inadequacy of the breastfeeding and baby facilities in public places, given the fact that parents spending plenty of time in such places. The objective of this paper was to assess the baby facilities in public spaces and to investigate whether the facilities meet users' requirement and standard. The evaluations of the baby facilities cover two poignant aspects:

- 1.) The users' perception toward the baby room design in Malaysia's shopping center,
- 2.) The current condition and the qualities of the baby room in Malaysia's shopping center.

The assessment of the above presented objectives is inclusive interior environmental factors, baby facilities and equipment, and interior design perspective.

II. THE BREASTFEEDING CULTURE IN MALAYSIA

Although breastfeeding is well known to provide meaningful health benefits for both mothers and babies [3], the breastfeeding rate in Malaysia had remained worryingly low [4]. In fact, it is not an understatement to claim that Malaysia is not breastfeeding friendly. One of the factors that could contribute to the willingness of mothers to breastfeed is the lack of baby care and parenting facilities, which are installed in baby rooms in public places. The news on Borneo Post Online (August 02, 2012) [4] has reported that only 23.7% of the babies born in Malaysia are breastfed exclusively in the first six months, reflecting that the breastfeeding rate in Malaysia are relatively low although lot of well-known organizations like WHO and UNICEF etc. were developing legal provision in order to promote breastfeeding culture, the trend seems to be persistently low. Over the years, a large body of legislation effort to protect women or mothers and to courage breastfeeding in public spaces had been done by renowned organizations like WHO and UNICEF. The objective of enacting the act is to protect and encourage mothers to breastfed and expect mothers to extend the duration for breastfeeding in order to increase the breastfeeding rate globally. In an effort to heed such call, different countries enacted different breastfeeding legislations. Nevertheless, the most popular legislation is that women or mothers reserve a full constitutional right to breastfed their baby in any public area at anytime as long as the breastfeeding activity is performed in an appropriate environment where the mothers feel comfortable [5]. In Malaysia, however most of

the mothers or women feel highly uncomfortable to breastfeed in public areas without a private and safe space like a proper baby room although they are protected by breastfeeding legislations and reserve the full constitutional right to breastfeed in public area. As a result, some mothers or women prefer do it discreetly [6]. In Taiwan, Public Breastfeeding Act that has been enacted since Nov 2010, compels most of the premises to set up appropriate baby rooms equipped with adequate baby facilities [7]. On the other hand, Breastfeeding in public openly are not acceptable for mother or women in China, hence, the establishment of baby care facilities in public places have been poignantly urged and encouraged [8],[9].

III. DEFINITION OF A BABY ROOM

A Baby Room can be defined as a particular space that allows parents or the children's caretakers to carry out the activity for breastfeeding, extracting milk, changing the baby's dippers, other clothing essentials and preparing the milk for their kids and infants [10]. In the distant decades, baby room is not commonly provided in the shopping malls hence it is hardly found in the older shopping malls that have been built prior to the awareness that the baby room is an essential necessity. Nevertheless, in the recent years, the baby room has been prominently introduced but more often that not, the designing of the rooms' specifications are very much left to the designers without giving much voice to the end users. An example of such lack of end-users' input is the fact that many designers are not aware that male adults have increasingly become part of the occupant population thus, the privacy for breastfeeding women is often compromised and violated. This research studies will reveal the space users' perception toward the baby room design.

The current conditions for the baby room in Malaysian shopping center are generally diverse and not standardized with each shopping mall providing baby rooms with different specifications which is baby room and feeding room are attached together. Another scenario was only baby room provided and there is no feeding room available. The quantity and the quality of the baby rooms on the other hand are usually influenced by the age of the shopping center. Most interesting to note is that, currently, the design of the baby rooms does not comply with any rule & regulation especially because there aren't any standardized policies or authoritative sanction given and written in the Malaysian UBBL 1984. According to the Architect, The authority in Kajang State [11], Malaysia does not enforce or govern any relevant building regulations pertaining to baby rooms. The locations of the baby room are generally located in two different areas which are next to toilets and some are located in baby store department.



Fig. 1 Some Basic Facilities Provided In The Baby Room, Located In Malaysia Shopping Center.

IV. IMPORTANCE OF INTERIOR ENVIRONMENT FOR BABY ROOM

The physical settings of the interior environment have absolute effects on mothers' breastfeeding's mood. Breastfeeding in a relaxing environment would exponentially induce efficient milk flow. As evolutionary homo sapiens, human beings are known to be highly acute and sensitive to the interior environment, and sensitivity towards the environment can be determined by various factors and disciplines, including shapes, colors, lighting, smell, sound and feel [12]. Brill and colleagues (1984) for instance revealed that the interior design factors that have a great impact on the space user's performance are ranked accordingly in the hierarchy of furniture, noise, flexibility, comfort, communication, lighting, temperature and the air quality [13]. These factors saliently affect a mother's emotion, mood and capability to breastfed her baby.

A. Furniture, Finishing and Equipment

First and foremost, adequate furniture and equipment ought to be provided in the baby room for comfort and convenience as this would allow mothers to breastfeed their baby effectively. A proper setting is needed in the baby room to house all the necessary equipment such as a water dispenser, antibacterial solutions, paper towels and many other basic necessities to ensure the space users are able to clean the milk bottle or relevant utensils properly [10]. Furthermore, built in furniture provided must comply with local authority's requirement and specifications. Some examples of such specifications include countertops that must be able to function in heavy duty and nonporous or stainless steel materials in-order to house all the heavy equipment [14]. Loose furniture like sofa on the other hand needs to be accommodative of breastfeeding postures to serve the ergonomic needs and anthropometric purposes.

B. Color Influences

Another salient factor that must be given utter attention in refurbishing the baby room is the color influences. Colors are perceived differently [15] from one individual space user to

another especially when the space user belongs to different milieu of age, gender, and culture. A research study profoundly suggested that a cool color applied for the interior design would visually be less captivating and distracting [16]. This theory should be applied in designing a baby room to ensure that mothers would be able to breastfeed their baby in a more engaged, calm and peaceful environment.

C. Aesthetic Quality

Aesthetic quality is not purely for serving beautification purposes, contrary, it can be defined as an important criterion in designing a baby room. Aesthetic quality of a given space is highly affective of its inhabitants, and in this research's case, would affect the overall temperament of the mother who would want to breastfeed her child. The criteria of the aesthetic have always been elusive, but one could refer to a set of construct that has been declared by Cramer [17], in which, the aesthetic quality would be highly determinate by coherence, craftsmanship, concept, power of expression, development and originality. It is interesting to note that an empirical investigation reported that physical environment is always important for human well and health being [18], [19], [20].

D. Lighting design

Due to logistical constraints and improbability, under normal circumstances, most of the baby room do not have natural light could be directed into it especially due to the baby room is located in the shopping center. Consequently, this would logically mean that the baby room heavily relies on artificial lighting conditions. Hence, lighting design is part of the crucial criteria for designing a baby room notably because it substantially reflects the great impact on space users' task-performance [21] especially mothers who are extracting milk in the room, perform changing for their baby and cleaning their baby utensils. Subsequently, appropriateness and adequacy of light intensity could provide pleasant ambience directly transforming the space into a welcoming and favorable environment for the space users or breastfeeding mother.

E. Indoor air Quality (IAQ)

The baby room is a place for mothers to occupy and take approximately 15-30 minutes to breastfeed their baby. Beside hygienic provision, indoor Air Quality (IAQ) is another important matter to be considered. Poor IAQ dramatically influences mothers and their child's general health and based on the information from Korean National Environmental Technology Information Center [22], the IAQ has great impact on the human nervous system. The inappropriate materials selections for the baby room could cause dire consequences to the mother and baby as the materials may potentially release some invisible, but potently harmful gas. These strong toxicity substances can contaminate the space through the emission from the furniture, interior materials and finishing materials and such situation is highly dangerous due to inevitably mothers and their baby always have close

connection with these items. Therefore the material selection is important for the baby room. In this light of knowledge, materials classified under Formaldehyde (HCHO) and volatile organic compounds (VOC) are recommended as it can be claimed safe to be used as it evaluated by IAQ certification organization [23], [24].

F. Hygiene matter

Due to its space user including infants who are highly vulnerable to health risks, [14] ideally posits that the interior environment of the baby room should be clear of all undesirable substances and should not consist any pathogenic microorganisms, minimizing all risk for contamination. Considering this stipulation, one could conclusively deduce that it is highly not recommended to allocate the baby room in the vicinity and proximity of the toilet.

G. Green elements

There are other elements in the baby room that should also be given utter consideration. The presence of green and natural properties for example is predominantly thought to be able to improve human's well being as explained by Ulrich, R [25] and it also positively influences human perception. This is because indoor plants are known to be 'magically' promoting stress-reducing effects to a certain degree [26]. Obviously, these theories positively bring a lot advantages to mothers.

H. Signage

Theoretically, orientation problem that arises from poor signage will negatively cause a person experiencing "spatial anxiety" [27]. Therefore, if a person encounters difficulty in finding the destination, it may lead to medical conditions like headache, increased of blood pressure, and the feeling of desperation [28], all of which, should be avoided by mothers who are nurturing their babies. Hence, interior designers need to take into consideration the readability, reliability and the location of the signage and direction to the baby room [29].

V. METHODOLOGY

For the purpose of investigating the research questions of the study, a questionnaire has been developed for the survey and it was instrumented and distributed from June 2012 to September 2012 in different districts of Malaysia which was segregated into northern, central and southern parts. The questionnaire is specifically divided into 3 parts, each designed to address the variables of problem statement, facilities and interior environment (dependent variables). For the purpose of validity and reliability, the questionnaire utilized both open ended and close ended responses. These 3 independent variables are intended to utilize to test the space user's overall perception toward the interior conditions and design of the baby room. In total, 100 sets of the questionnaire was distributed to the respondents via email, handout and on site distribution. The respondents are specified to be public space users occupying the baby room in shopping centers. Out of the 100 questionnaires distributed, only 78 (78%) of the

respondents answered the questionnaire. These respondents included male and female, were parents and baby care giver (including the racial variants of Chinese, Malay and Indians). In terms of the population's location, it was determined that there are a total of 80 shopping center in PJ state, Malaysia, however, for the purpose of this study, one of the shopping center located in an urban district, has been randomly selected for the data collection by using True Random Number Generator [30]. Although the survey was conducted in the particular district of Selangor that is recognized as a most developed state with one of the highest population density in Malaysia [31], it is also has been declared as one of the states with the lowest breastfeeding rates in the country [32].

VI. RESULT

For the purpose of this study, the data has been collected, arranged, derived and analyzed using the SPSS 21 software to obtain the descriptive statistic. The result of the pilot test reported two contrasting scenarios for the stratum aspects: generally the baby room was adequately designed in the urban localities and it was poorly designed for rural area. The below pie chart, figure 2 has clearly demonstrated that 39.7% of space users are facing some form of difficulties when they occupy and utilize the baby room. Generally, the results collected from the respondents showing 35.9 % of Malaysian does shopping quite frequently and 50 % shop sometime, this can be translated into a conclusion that the shopper density in the shopping center selected for the study is quite high. There is 33.3% of the space users rated the baby room in the shopping centers are under poor category while only 12.8% of the respondents deemed that the baby rooms in Malaysian shopping centers can be considered as fairly good. Most importantly, none of the respondents rate the condition of the baby rooms in Malaysian shopping centers in excellent category as well 32.1% of the space users rated the furniture are in poor conditions. The fact findings are showing that users have negative perception toward the design, condition and quality for the baby room.

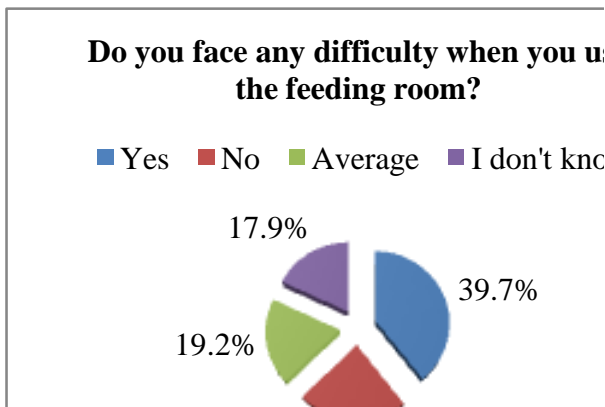


Fig. 2 There is 39.7% of the Space Encountered Some Difficulty When They Occupy Baby Room

A. Interior Environmental factors

In its foundational nature, interior environment can consist of a few elements like comfort level and to what extent is the environment user-friendly. Below table 2 reflected the result derived shown 32.1% of the space users rated the interior environment of the baby room are in poor range and surprisingly, there is 0% scores fall under the excellent category.

TABLE I
THE RESULT DERIVED FROM THE RESPONDENTS

How you rate the interior environment/design for the feeding room?				
	Frequency	%	Valid Percent	Cumulative Percent
Poor	25	32.1	32.1	32.1
Average	46	59.0	59.0	91.0
Valid Fairly good	7	9.0	9.0	100.0
Excellent	0	0	0	0
Total	78	100.0	100.0	

There are few vital facts mentioned by space users from the open ended question that contribute to the poor environmental condition, which are poor ventilation, poor lighting conditions, poor interior design planning and inadequacy of facilities. Based on the feedback acquired from the site, it can be seen that many space users were dissatisfied with the interior environment. Respondents are complaining that the poor lighting and ventilation are making the room uncomfortable and stuffy. Most of the baby room does not have wide entrance for convenient access as the entrance remained standard door width which is 900mm wide. This constraint of the entrance dimension restricted the users' movement severely especially for space users who are on wheel chairs or those who bring twin stroller to access to the room. In other considerations, some of the baby rooms have integrated feeding cubicle but many others do not include such features, reflecting poor space planning. Majority of the baby room also lack of essential consumables like drinking water, baby soap and toilet papers. Similarly, the built-in features are also inadequate as the baby rooms lack a table top that is spacious enough to allocate all the necessary stuffs and there is a lack of power source outlets for mothers to use electronic pump to extract milk and other activities that require electricity. Some furniture in the baby room is not serving its main purpose, as the seats are too small, and discomfort reflecting that the ergonomic deficiency. Some respondents feedback that they rather decline to use baby room for breastfeeding or preparing the milk due to the lack of supportive environment provided. In return, they would rather choose to give solid food to their babies or perform food preparation for their baby in the restaurants since the environments in the restaurants are predominantly and potentially better than the baby room.

B. Hygienic matter

Among the five key issues, hygienic matter was one of the serious problems that the respondents vocally raised. Many of the respondents highlighted that the baby room is an undesirable environment or interior space to be in because it is usually unhygienic. The results in this section can be considered as alarming and require critical interventions. A total of 52.6% of the space users strongly complained about the hygiene of the baby room which includes the bad smell of urine and the poorly maintained for the cleanliness provision within the baby room. The findings also seem to point that the awareness level of the space users when it comes to environmental hygiene is reflecting that the space users indeed have no hygiene sense. Respondents mentioning grotesque hygienic problems like rubbish and diapers are scattered around the rubbish bin and/or on the floor, the odor is especially bad and the room smelling of urine and even respondents voiced out their unhappiness for the location of the baby room, which is next to the toilet is unhygienic for babies. Consequently, if such conditions are to be true, then the designated space is in high risk in the growth of pathogenic microorganisms making it not just an unwelcoming interior space, but also a dangerous one. As a result, some mothers choose not to breastfeed their baby due to discomfort and unwelcoming of the interior space. From this preliminary test, it was found that none of the baby room is equipped with disabled, infant and children friendly facilities.

C. Security enforcement and privacy perceived

Most of the respondents also emphasized that security issues are important in the baby room especially because the space serves such a huge volume of public crowd on a daily basis. In this study, some respondents highlighted that the Closed-Circuit Television System (CCTV) should be provided in appropriate areas to boost the security and thus ensuring the safety of the kids. Other safety features like the intercom service and emergency ring bell are also considered as important features and it should be provided for emergency usages especially for space users who might have preemptive disadvantages like the disabled, elderly or pregnant users. Additionally, 38.5% of the respondents addressed that the baby room is lack of privacy.

VII. DISCUSSION

The key findings for this survey have strongly proven that the improvements and developments for baby rooms in the shopping center are imminently needed. This is extremely crucial as all relevant parties should play their role to enhance the interior of the baby room in shopping centers in order to make them shopping centers those are more accommodative to breastfeeding activities. Some general guidelines are advised to be followed by the relevant authority. Similarly, they should practice the enforcement in-order to strengthen and maintain the design quality of the baby room to serve the breastfeeding

purposes and significantly rise up the breastfeeding rate. At the same time allowing Malaysia to become a nation that is equipped with breastfeeding friendly shopping centers.

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REFERENCES

- [1].Zheng JiaHe, Future arc *sustainability recreation (On Fashionable Recreation Architecture)* 1st edition, 2006: 60
- [2].Committee on Nutrition, American Academy of Pediatrics, "Follow-up on Weaning Formulas," *Pediatrics* 83 (1989): 1067.
- [3].American Academy of Pediatrics. Breastfeeding: *best for baby and mother*. *AAP Newsletter* 2000;2:2-5.
- [4].Borneo Post online (2012). Retrieved from <http://www.theborneopost.com/2012/08/02/breastfeeding-culture-low-in-malaysia/>
- [5].Vance, M. R. (2005). Breastfeeding legislation in the United States: A general overview and implications for helping mothers. *Leaven*, 41(3), 51-54.
- [6].Tips for breastfeeding in public: sharing experiences in Malaysia. Retrieved from <http://www.babycenter.com.my/a1037503/babycenter-mums-tips-for-breastfeeding-in-public#ixzz2Q3F92zh0>.
- [7].Public Breastfeeding Act. Ministry of Justice (Republic of China) 2010-11-24. Retrieved 2011-08-26. <http://law.moj.gov.tw/Eng/LawClass/LawAll.aspx?PCode=L0070036>
- [8].Congress to consider privacy issue (2007), Retrieved from http://www.chinadaily.com.cn/opinion/2007-01/29/content_795228.htm
- [9].Breastfeeding in public (2007), Retrieved from http://www.chinadaily.com.cn/opinion/2007-01/29/content_795228.htm
- [10].Baby Care Room Development Control Plan, *Penrith Council, Australia (2006)*. *Australia*.
- [11].Bibi, A. (2012, June 18). *UBBL in Malaysia*. (Y. Y. Mei, Interviewer)
- [12].Oberlin, J., (2008), Evidence that pediatric settings can heal, *Health Care Design*, <http://www.healthcaredesignmagazine.com/ME2/dirmod.asp?sid=&nm=&type=Publishing&mod=Publications%3A%3AArticle&mid=8F3A7027421841978F18BE895F87F791&tier=4&id=92860F707A534EE6A9266DC828E2FBCA>, Issue Date: Online, Posted On: 7/8/2008
- [13].Brill, M., Margulis, S. T., & Konar, E. (1984). *using office design to increase productivity* (vol. 1). workplace design and productivity.
- [14].Smith, S. L. (2008). Guidelines for Safety and Quality Assurance When Preparing Infant Feedings. *Newborn and Infant Nursing Reviews*, 8(2), 101-107. doi:10.1053/j.nainr.2008.03.013 <http://dx.doi.org/10.1053/j.nainr.2008.03.013>
- [15].Jalil, N. A., Yunus, R. M., & Said, N. S. (2012). Environmental Colour Impact upon Human Behaviour: A Review. *Procedia-Social and Behavioral Sciences*, 35, 54-62. <http://dx.doi.org/10.1016/j.sbspro.2012.02.062>
- [16].Inform Design, *Office Color Influences Productivity*. (n.d.). Retrieved from http://www.informedesign.org/Rs_detail.aspx?rsId=3185
- [17].Cramer, C., 1988. Het oordelen over kunst [Judging art]. *Nieuwsbrief van het Fonds voor beeldende kunsten, vormgeving en bouwkunst* 1, 4-5.
- [18].Moore, D.J.J., (2000), Designed to Heal Modern Healthcare, *Chicago*: Vol. 30, Issue: 47; page 32, 3 pgs.
- [19].Ozcan, H. (2006) *Healing Design: A Holistic Approach to Social Interaction in Pediatric Intensive Care Units in the United States and Turkey*, Dissertation, Texas A & M University, USA
- [20].Visentin, L., (2006) *Architecture and Well-Being: Against Doctors' Orders*, Carleton University (Canada).
- [21].El-Zeiny, R. M. A. (2012). The Interior Design of Workplace and its Impact on Employees' Performance: A Case Study of the Private Sector Corporations in Egypt. *Procedia-Social and Behavioral Sciences*, 35, 746-756. <http://dx.doi.org/10.1016/j.sbspro.2012.02.145>
- [22].Korea National Environmental Technology Information Center, (2011)

- <http://www.konetic.or.kr> (5 July 2011).
- [23]. Korea Air Cleaning Association, (2011). Retrieved from <http://www.kaca.or.kr> (6 July 2011).
- [24]. Korea Ministry of Environment, (2011). Retrieved from <http://www.me.go.kr/kor/notice/chemicals.jsp> (6 July 2011).
- [25]. Ulrich, R. Ph.D., Lunden, O., Eltinge, J. Ph.D. (2002). *A Study of appropriate art*. Texas A & M University.
- [26]. Dijkstra, K., Pieterse, M. E., & Pruyn, a. (2008). Stress-reducing effects of indoor plants in the built healthcare environment: the mediating role of perceived attractiveness. *Preventive medicine*, 47(3), 279–83. doi:10.1016/j.ypmed.2008.01.013
<http://dx.doi.org/10.1016/j.ypmed.2008.01.013>
- [27]. Lawton, C. A. (1996). Strategies for indoor wayfinding: The role of orientation. *Journal of Environmental Psychology*, 16(2), 137-145.
<http://dx.doi.org/10.1006/jevp.1996.0011>
- [28]. Yoo, S. (1991). Architectural legibility of shopping centers: *Simulation and evaluation of floor plan configuration*. Milwaukee: University of Wisconsin. Ph D. thesis.
- [29]. Azhari, N. F. N., Salam, H., & Hasbullah, M. N. (2012). Baby Care Room in Shopping Malls: Accessibility to Malaysian Public. *Procedia-Social and Behavioral Sciences*, 35, 531-538.
<http://dx.doi.org/10.1016/j.sbspro.2012.02.119>
- [30]. True Random Number Generator, www.random.org
- [31]. State and District Database Department of Statistics Malaysia; 2005, 75.
- [32]. Ministry of Health Malaysia: *National Health and Morbidity Survey*. Breastfeeding; 1996:18.